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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/541,876	07/08/2005	Sang-Youl Kim	1834-2	7961
7590 Thomas M Galgano Galgano & Burke Suite 135 300 Rabro Drive Hauppauge, NY 11788		12/19/2006	EXAMINER LYONS, MICHAEL A	
			ART UNIT 2877	PAPER NUMBER
SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE		
3 MONTHS	12/19/2006	PAPER		

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

IV

<b>Office Action Summary</b>	Application No.	Applicant(s)
	10/541,876	KIM ET AL.
	Examiner	Art Unit
	Michael A. Lyons	2877

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) Responsive to communication(s) filed on 08 July 2005.
- 2a) This action is FINAL.                            2b) This action is non-final.
- 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) Claim(s) 1-7 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) Claim(s) \_\_\_\_\_ is/are allowed.
- 6) Claim(s) 1-7 is/are rejected.
- 7) Claim(s) \_\_\_\_\_ is/are objected to.
- 8) Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) The specification is objected to by the Examiner.
- 10) The drawing(s) filed on 08 July 2005 is/are: a) accepted or b) objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) All    b) Some \* c) None of:
  1. Certified copies of the priority documents have been received.
  2. Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) Notice of References Cited (PTO-892)
- 2) Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) Information Disclosure Statement(s) (PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_.
- 4) Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.
- 5) Notice of Informal Patent Application
- 6) Other: \_\_\_\_\_.

## **DETAILED ACTION**

### ***Drawings***

Figure 1 should be designated by a legend such as --Prior Art-- because only that which is old is illustrated. See MPEP § 608.02(g). Corrected drawings in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.84(c)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

### ***Specification***

The abstract of the disclosure is objected to for the reasons set forth below. Correction is required. See MPEP § 608.01(b).

The abstract of the disclosure does not commence on a separate sheet in accordance with 37 CFR 1.52(b)(4). A new abstract of the disclosure is required and must be presented on a separate sheet, apart from any other text.

The disclosure is objected to because of the following informalities: there is no statement in the specification cross-referencing the claim of foreign priority to foreign application 10-2003-0001854 from Korea.

Appropriate correction is required.

A substitute specification in proper idiomatic English and in compliance with 37 CFR 1.52(a) and (b) is required. The substitute specification filed must be accompanied by a statement that it contains no new matter. It is noted by the examiner that while the invention

disclosed in the specification is understood, the specification is replete with non-proper idiomatic English, and is difficult to easily read and follow.

***Claim Objections***

Claims 3, 4, 6, and 7 are objected to because of the following informalities: the claims each contain the word 'equation' that is improperly capitalized. Appropriate correction is required.

***Claim Rejections - 35 USC § 112***

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

**Claims 1-7 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.**

The claims are generally narrative and indefinite, failing to conform with current U.S. practice. They appear to be a literal translation into English from a foreign document and are replete with grammatical and idiomatic errors.

Claim 1 recites the limitation "the other direction" in line 10 of the claim. There is insufficient antecedent basis for this limitation in the claim. What other direction is being referred to here? In Figure 2, on which the claim is based, the fiber is a Y-shaped fiber, making the other direction extremely confusing.

Claim 1 recites the limitation "the same" in line 20 of the claim. There is insufficient antecedent basis for this limitation in the claim. What is the word "same" referring to here? Is it the number of vibrations, or the film thickness?

As for the remainder of claim 1, the language used in the claim is such that it is impossible to determine the scope of the invention claimed therein. First, how does an optical fiber focus light? In what direction is this light output? Is it in a random direction, or is it directed at the surface of the sample material? As noted above, what direction is the “other direction” that the fiber outputs the light? Is it towards the light source, or towards the detection unit? Next, regarding the spectrograph. Does the spectrograph split the light based on an optical intensity of each wavelength? The clumsy language of the claim makes this unclear. Also, how does an optical measuring device array provide a certain light intensity of each wavelength? The intensity of a wavelength of light is dependent upon the light source it was generated by, or as a result of potential interference with other wavelengths or light beams, and not a measuring device. Further, the claim refers to a transformation unit which transforms a wavelength based spectrum detected by the detection unit. Yet, in the preceding clause of the claim, the claim indicates an optical intensity (spectrum) of each wavelength. Does that mean the spectrum indicated in the transformation clause is the intensity, or is it an actual spectrum? Plus, the language “and transforms the analog signal into a digital signal by the transformation unit” is clumsy. Then, the claim discusses a computation unit that computes the number of vibrations based on a fast Fourier transform in which the data transformed by the transformation unit adapts a refraction index dispersion. First, what are the vibrations? Are they indicative of a beat pattern due to the multiple wavelengths detected previously? Also, how does the transformed data adapt a refraction index dispersion? Is the refraction index dispersion information gleaned from the transform, or is the transform molded to achieve the dispersion? How is it related to the calculated vibrations?

Claim 2 recites the limitation "an energy axis in which the refraction index weight is multiplied" in lines 5-6 of the claim. There is insufficient antecedent basis for this limitation in the claim. What is the refraction index weight? What is this weight being multiplied to?

Further, regarding claim 2, the idiomatic English used in the claim makes it extremely difficult to comprehend the scope of the invention claimed therein.

Claims 4 and 6 recite the limitation "an energy axis in which a refraction index weight is multiplied" in lines 9-10 of claim 4 and lines 5-6 of claim 6. There is insufficient antecedent basis for this limitation in the claim. What is this weight being multiplied to?

Further, regarding claim 4, the idiomatic English used in the claim makes it difficult to understand what is being claimed by "the number of vibrations which is obtained based on a fast Fourier transformation with respect to a reflection spectrum".

As for claim 5, the language used in the claim is such that it is impossible to determine the scope of the invention claimed therein. First, the preamble of the claim makes it difficult to ascertain if the method is a method for measuring a thickness of a thin film based on an interference effect by a thin film, or a method for measurement of film thickness using an improved fast Fourier transformation. Next, how is light "inputted onto an end of an optical fiber"? Shouldn't the light be input into an optical fiber, to ensure the light is transported in the fiber? Light input "onto" a fiber may simply reflect off the fiber. The claim then recites the limitation "the light from an end of an optical fiber is vertically inputted onto a surface of a sample material having a thin film". There is insufficient antecedent basis for this limitation in the claim. What light is this? In the previous step, light is focused onto a substrate, and then input into the fiber; is the light from this step reflected off the substrate twice? Or is the second

step meant to be part of the first step? This is increasingly confusing due to the third step, where “the light vertically inputted onto a surface of the sample material having a thin film is reflected and inputted into the optical fiber through a lens”. This further compounds the “into” versus “onto” discussion, while making the first three steps of the claim, as a whole, make no sense. In the fourth step of the claim, the claim recites the limitation “a detection unit which splits the outputted light into a spectrum of each wavelength”. There is insufficient antecedent basis for this limitation. Where does the output light come from? What is the output light? Also, is the spectrum comprised of multiple separated wavelength, or is each wavelength a spectrum in and of itself? Finally, in the fifth step of the claim, the claim states that “the film thickness is computed based on a vibration period obtained based on a fast Fourier transformation by adapting a refraction index dispersion through the transformed signal”. First, what are the vibrations? Are they indicative of a beat pattern due to the multiple wavelengths detected previously? Also, how does the transformed data adapt a refraction index dispersion? Is the refraction index dispersion information gleaned from the transform, or is the transform molded to achieve the dispersion? How is it related to the calculated vibrations?

Further, regarding claim 6, the idiomatic English used in the claim makes it extremely difficult to comprehend the scope of the invention claimed therein.

It is noted that claim 7 stands rejected for the reasons presented above regarding claims 1 and 2.

As a result of the above, examination of the claims with regards to art is precluded at this time.

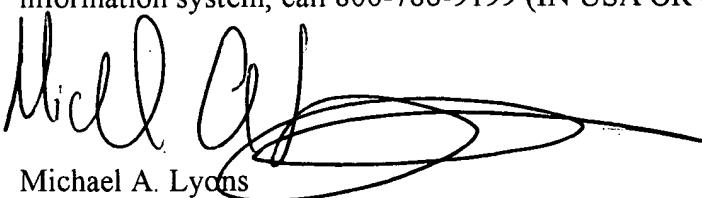
***Conclusion***

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. US Pat. 6,239,878 to Goldberg, US Pat. 6,445,457 to Early, US Pat. 5,440,141 to Horie, US 2004/0246493 to Kim et al., US Pat. 7,145,662 to Jeong et al., and US Pat. 5,866,917 to Suzuki et al.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Michael A. Lyons whose telephone number is 571-272-2420. The examiner can normally be reached on Monday through Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Gregory J. Toatley can be reached on 571-272-2800 ext. 77. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.



Michael A. Lyons  
Patent Examiner  
December 12, 2006